

**AXILLARY AND INGUINAL LYMPHADENECTOMY AT THE UNIVERSITY CLINICAL CENTER
NIS: A FIVE-YEAR RETROSPECTIVE ANALYSIS**

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Regional lymphadenectomy represents a standard surgical procedure in the management of malignancies with nodal metastases, aiming to achieve accurate staging, regional disease control, and potential improvement in survival. With the introduction of sentinel lymph node biopsy and modern imaging techniques, the indications for complete lymphadenectomy have been significantly redefined. The aim of this study was to analyze indications, demographic characteristics, and postoperative outcomes of patients undergoing axillary and inguinal lymphadenectomies over a five-year period. This retrospective study included patients with histologically confirmed malignancies who underwent axillary or inguinal lymphadenectomies between 2015 and 2020. Indications for surgery were a positive sentinel lymph node biopsy or clinically and/or radiologically confirmed lymphadenopathy. Data collected included demographic characteristics, type of primary tumor, need for re-dissection, and postoperative complications. A total of 65 lymphadenectomies were performed (43 axillary and 22 inguinal). The most common primary malignancy in both groups was cutaneous melanoma (88.37% in the axillary group and 81.82% in the inguinal group). Re-dissection was required in 23.26% of patients in the axillary group and 27.27% in the inguinal group. Postoperative

complications were infrequent and included seroma, hematoma, and wound dehiscence, with no major adverse events reported. Axillary and inguinal lymphadenectomies remain important procedures in the contemporary surgical management of patients with clinically evident (macrometastatic) disease. When applied selectively, these procedures provide effective regional disease control with a low complication rate.

Keywords: lymphadenectomy, axillary lymphadenectomy, inguinal lymphadenectomy, melanoma, lymph node metastases, surgery

**AKSILARNA I INGVINALNA LIMFADENEKTOMIJA U UNIVERZITETSKOM KLINIČKOM
CENTRU NIŠ: PETOGODIŠNJA RETROSPEKTIVNA ANALIZA**

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Regionalna limfadenektomija i dalje predstavlja značajnu hiruršku proceduru u lečenju malignih bolesti sa metastazama u limfnim čvorovima, omogućavajući precizno stadiranje bolesti, regionalnu kontrolu i potencijalno poboljšanje preživljavanja. Uvođenjem biopsije sentinel limfnog čvora i napretkom dijagnostičkih metoda snimanja, indikacije za kompletnu limfadenektomiju značajno su se promenile. Cilj ove studije bio je da analizira indikacije, demografske karakteristike i postoperativne ishode kod pacijenata podvrgnutih aksilarnoj i ingvinalnoj limfadenektomiji tokom petogodišnjeg perioda. Ova retrospektivna studija obuhvatila je pacijente sa histološki potvrđenim malignitetima koji su podvrgnuti aksilarnoj ili ingvinalnoj limfadenektomiji u periodu od 2015. do 2020. godine. Indikacije za operativno lečenje bile su pozitivan nalaz biopsije sentinel limfnog čvora ili klinički i/ili radiološki potvrđeno zahvatanje limfnih čvorova. Prikupljeni su podaci o demografskim karakteristikama pacijenata, tipu primarnog tumora, potrebi za reintervencijom (re-disekcijom) i postoperativnim komplikacijama. Ukupno je izvedeno 65 limfadenektomija, od čega 43 aksilarne i 22 ingvinalne. Najčešći primarni malignitet u obe grupe bio je kutani melanom, koji je činio 88,37%

slučajeva u aksilarnoj grupi i 81,82% slučajeva u ingvinalnoj grupi. Re-disekcija je bila neophodna kod 23,26% pacijenata u aksilarnoj grupi i kod 27,27% pacijenata u ingvinalnoj grupi. Postoperativne komplikacije bile su retke i uključivale su serom, hematom i dehiscenciju rane. Nisu zabeleženi ozbiljni neželjeni događaji. Aksilarna i ingvinalna limfadenektomija i dalje imaju važnu ulogu u savremenom hirurškom lečenju pacijenata sa klinički evidentnom (makrometastatskom) bolešću limfnih čvorova. Kada se primenjuju selektivno i u skladu sa savremenim indikacijama, ove procedure omogućavaju efikasnu regionalnu kontrolu bolesti uz nisku stopu postoperativnih komplikacija.

Ključne reči: limfadenektomija, aksilarna limfadenektomija, ingvinalna limfadenektomija, melanom, metastaze u limfnim čvorovima, hirurgija

Introduction

Regional lymphadenectomy in patients with malignancies and nodal metastases represents an important surgical procedure associated with improved long-term oncological outcomes, acceptable morbidity, and a relatively low risk of complications when performed according to contemporary surgical standards (1,2). The primary goals of lymphadenectomy include accurate pathological staging, effective regional tumor control, and potential improvement in overall survival (1).

Despite the increasing use of minimally invasive approaches, such as sentinel lymph node biopsy and advanced imaging techniques, complete lymphadenectomy continues to play a significant role in patients with confirmed nodal metastatic disease (3–5). Contemporary indications for regional lymphadenectomy extend beyond skin malignancies and include soft tissue malignancies, breast carcinoma, and selected gynecological tumors, particularly in patients with clinically evident nodal disease (6–10).

The most common malignancies associated with lymph node metastases include cutaneous melanoma, non-melanoma skin cancers, soft tissue malignancies, and breast cancer (2,6,7). Recent advances in sentinel lymph node mapping and imaging modalities have significantly improved patient selection and reduced unnecessary complete lymphadenectomies (11–14).

The aim of this study was to analyze indications, demographic characteristics, and postoperative outcomes of patients who underwent axillary and inguinal lymphadenectomies at the University Clinical Center Nis over a five-year period.

Patients and Methods

A retrospective observational study was conducted at the Department of Plastic and Reconstructive Surgery, University Clinical Center Nis. Medical records of all patients who underwent axillary or inguinal lymphadenectomies for malignant disease between January 2015 and December 2020 were reviewed.

The study included patients with histologically confirmed malignancies and a clear indication for complete regional lymphadenectomy of the axillary or inguinal region. The most common primary

tumors were cutaneous melanoma, non-melanoma skin cancers (predominantly squamous cell carcinoma), soft tissue malignancies, and breast cancer.

Indications for lymphadenectomy included a positive sentinel lymph node biopsy or clinically and/or radiologically confirmed lymphadenopathy.

Collected data included demographic characteristics (age, sex), type of primary tumor, region of lymphadenectomy (axillary or inguinal), need for re-dissection, and postoperative complications.

Analyzed complications included wound dehiscence, hematoma, and seroma formation.

This was a descriptive study, and results were presented as absolute numbers and percentages.

Results

A total of 65 lymphadenectomies were performed during the study period, including 43 axillary and 22 inguinal lymphadenectomies. The distribution of lymphadenectomies according to anatomical region is presented in Figure 1.

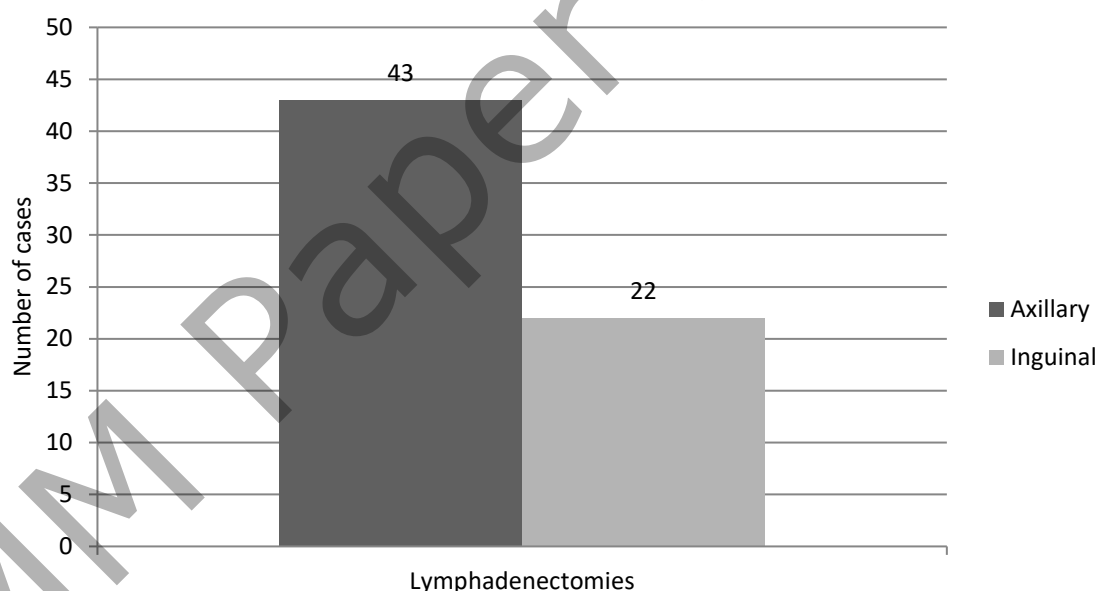


Figure 1. Distribution of Lymphadenectomies by Anatomical Region

The median age of patients in both groups was 68 years (range 27–82 years).

In the axillary lymphadenectomy group ($n = 43$), the most common primary malignancy was cutaneous melanoma in 38 patients (88.37%), followed by breast cancer in 4 patients (9.30%) and squamous cell carcinoma in 1 patient (2.33%). The distribution of primary malignancies among

patients undergoing axillary lymphadenectomy is presented in Figure 2. This group included 27 males (62.79%) and 16 females (37.21%).

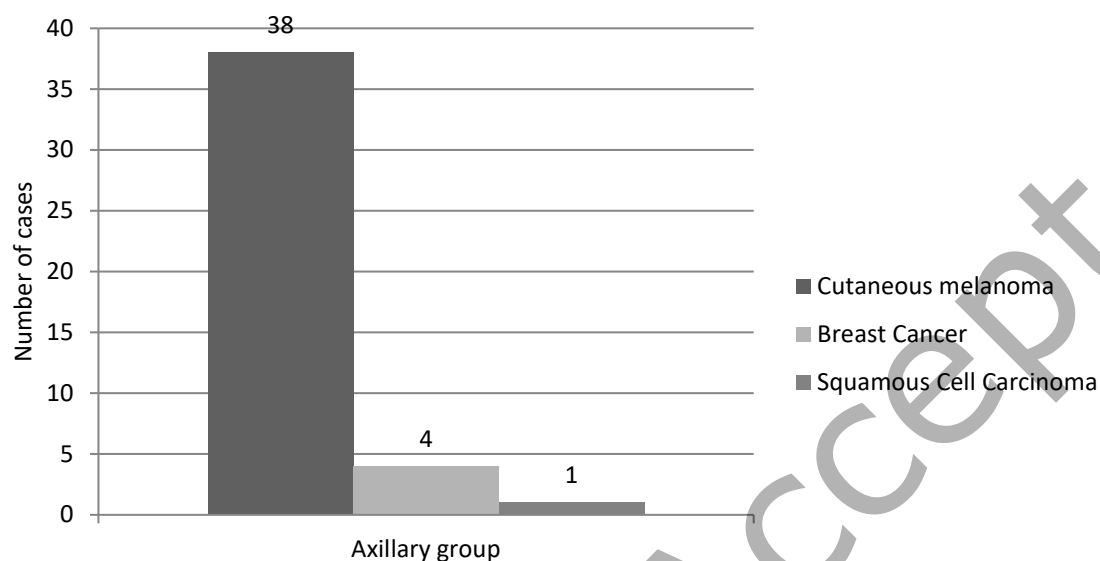


Figure 2. Primary Malignancies Among Patients Undergoing Axillary Lymphadenectomy



Figure 3. Preoperative view of the axillary region



Figure 4. Postoperative view of the axillary region

Axillary re-dissection was performed in 10 patients (23.26%), with a minimum interval of 6 months from the initial procedure.

In the inguinal lymphadenectomy group ($n = 22$), the most common malignancy was also cutaneous melanoma in 18 patients (81.82%), followed by soft tissue malignancies in 3 patients (13.63%) and squamous cell carcinoma in 1 patient (4.55%). The distribution of primary malignancies among patients undergoing inguinal lymphadenectomy is presented in Figure 5. This group included 12 males (54.55%) and 10 females (45.45%).

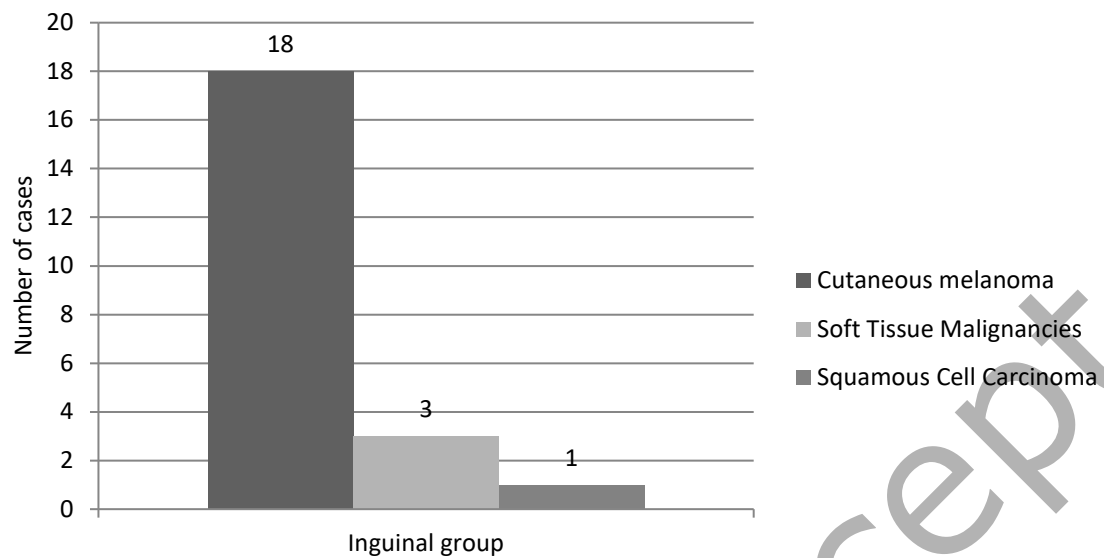


Figure 5. Primary Malignancies Among Patients Undergoing Inguinal Lymphadenectomy



Figure 6. Intraoperative view of the inguinal region



Figure 7. Postoperative view of the inguinal region

Inguinal re-dissection was performed in 6 patients (27.27%), also with a minimum interval of 6 months.

Re-dissection rates in the axillary and inguinal lymphadenectomy groups are shown in Figure 8.

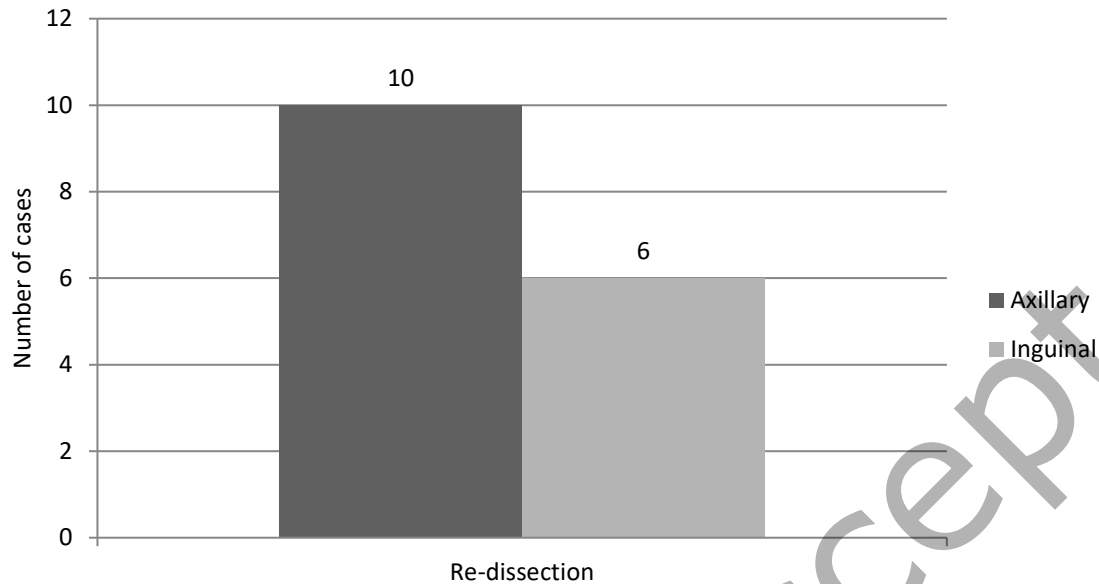


Figure 8. Re-dissection Rates Following Axillary and Inguinal Lymphadenectomy

Postoperative complications were infrequent and included wound dehiscence, hematoma, and seroma formation. No other significant complications were observed.

Discussion

Regional lymphadenectomy remains an important component of surgical management in patients with nodal metastatic disease across multiple malignancies, including melanoma, breast cancer, squamous cell carcinoma, and soft tissue tumors (1,2,6,7).

However, its role has been significantly redefined in the past decade, primarily following the results of the MSLT-II study and subsequent trials evaluating the role of complete lymphadenectomy after positive sentinel lymph node biopsy (3,4,8,9). These studies demonstrated that completion lymphadenectomy in patients with micrometastatic disease does not significantly improve overall survival compared to active surveillance with ultrasound monitoring.

Consequently, the routine use of complete lymphadenectomy in patients with micrometastatic disease has been substantially reduced, while complete regional lymphadenectomy remains the standard of care in patients with clinically evident lymphadenopathy, i.e., macrometastatic disease (5,10).

Recent studies have additionally emphasized the growing role of modern lymphatic mapping techniques, contrast-enhanced imaging, and individualized surgical strategies in reducing morbidity associated with nodal surgery (11–14).

In our study, cutaneous melanoma was the predominant primary malignancy in both groups, consistent with its well-known lymphotropic behavior and previously published data (1,2).

The low rate of postoperative complications observed in our series indicates that lymphadenectomy can be safely performed in a specialized surgical setting. The most common complications were mild and included seroma, hematoma, and wound dehiscence, with no severe complications or mortality recorded.

The need for re-dissection in a subset of patients may reflect the biological behavior of the disease, as well as the importance of adequate initial surgical management and careful postoperative follow-up.

Limitations of this study include its retrospective design, relatively small sample size, and the lack of long-term oncological outcomes such as overall and disease-free survival.

Conclusion

Axillary and inguinal lymphadenectomies remain important procedures in the surgical management of patients with nodal metastatic disease in skin and soft tissue malignancies. In the era of modern oncological approaches, their use is selective and based on well-defined clinical indications, particularly in patients with macrometastatic disease.

When performed according to contemporary oncological principles, these procedures provide effective regional disease control, accurate staging, and are associated with a low complication rate. The results of this study support their continued role in carefully selected patients within modern oncological surgery.

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AMM Paper Accepted